

Exercises for seminars 15 – 16 November

Instructions:

(Repeated from previous exercises.)

For all students: Please try to solve these exercises before the seminar. It is generally a better idea to work a little with all questions than to work a lot with only a few of them.

For those who have volunteered to present a written suggested solution: You are asked please to make copies of your solution for all participants in your seminar group. There are currently about 15 students in each group. Make 20 copies. You can borrow a copy card for this purpose in the department reception office, room 1241 ES. The intention is that all students as well as the lecturer should have the opportunity to read your answers before the seminars. For the Monday group this means that the copies should be available before noon on the preceding Friday. For the Tuesday group it means that the copies should be available before noon on the preceding Monday. There are boxes, one for each seminar group, in the shelves in the students' area on the 12th floor. You are free to come and ask me (Diderik Lund) about the problems before you produce your solution.

An answer can be hand written or computer typed. The problem with typing is that many of you are not familiar with producing formulae and diagrams on a computer. This is the main reason why we do not encourage electronic submissions, although you will have to learn some of this for writing a master's thesis.

Questions/problems

(1)

(From exam spring 1999.) Discuss whether the following observations can be consistent with the CAPM, or alternatively, what could be the reason(s) to observe deviations from the model. Discuss each point separately:

- (a) Many agents choose to invest only in risk free bank accounts, not in the stock market.
- (b) Some agents choose a more risky portfolio of shares than other agents. They say they do this because they are willing to take more risk in order to obtain a higher return.

(2)

In the zero-beta CAPM, find the location in the (σ, μ) diagram of all assets j which have

- (a) $\text{cov}(\tilde{r}_j, \tilde{r}_m) = 1$
- (b) $\text{cov}(\tilde{r}_j, \tilde{r}_m) = 0$
- (c) $\text{cov}(\tilde{r}_j, \tilde{r}_m) = 0.5$

(Consider each of these three cases separately.)

(3)

Consider the article by Roll (1977).

- (a) What is meant by an ex post efficient portfolio? If you were able to identify such a portfolio, would that make it easier to test the CAPM?
- (b) Assume that a riskless interest rate exists. If you look at weekly data for returns on assets and portfolios, you may perhaps discover that during some weeks, the realized rate of return on the market portfolio, r_m , is less than the riskless interest rate, r_f . Does this contradict the CAPM?